Amendments to the Claims

1 -- 2. (Canceled)

3. (Previously presented) In an optical communication system, a method for swapping control information of a baseband optical signal comprising:

applying, to an optical fiber, a subcarrier multiplexed baseband optical signal, the subcarrier multiplexed baseband optical signal composed of a modulated optical carrier having a payload without control information and a modulated optical subcarrier for control information without payload, the modulated optical subcarrier being at a subcarrier frequency which is separated from the modulation bandwidth of the optical carrier;

separating the modulated optical carrier from the modulated optical subcarrier by

receiving the subcarrier multiplexed baseband optical signal at an input port of an optical circulator,

applying the subcarrier multiplexed baseband optical signal via an extraction port of the optical circulator to an optical filter including a Bragg grating,

optically separating the modulated optical subcarrier in the optical filter and directing the modulated optical subcarrier to an optical energy transducer while reflecting the modulated optical carrier back to the extraction port of the optical circulator, and

outputting the modulated optical carrier to an output port of the optical circulator; and then

applying the modulated optical carrier to an optical modulator adapted for writing new subcarrier modulated control information.

4. (Canceled)

5. (Previously presented) A method for controlling the propagation path of a baseband optical signal comprising:

applying, to an optical fiber, a subcarrier multiplexed baseband optical signal, the subcarrier multiplexed baseband optical signal composed of a modulated optical carrier having a payload without control information and a modulated optical subcarrier for control information without payload, the modulated optical subcarrier being at a subcarrier frequency which is separated from the modulation bandwidth of the optical carrier;

receiving the subcarrier multiplexed baseband optical signal at the input to a routing element;

extracting the modulated optical subcarrier control information by

receiving the subcarrier multiplexed baseband optical signal at an input port of an optical circulator,

applying the subcarrier multiplexed baseband optical signal via an extraction port of the optical circulator to an optical filter including a Bragg grating,

optically separating the modulated optical subcarrier in the fiber Bragg grating and directing the modulated optical subcarrier to an optical energy transducer while reflecting the modulated optical carrier back to the extraction port of the optical circulator, and

outputting the modulated optical carrier to an output port of the optical circulator;

changing the wavelength of the optical carrier for the payload in response to the control information in a process not including converting said modulated optical carrier to electronic form;

directing the optical carrier for the payload along one of a plurality of output paths from the routing element responsive to the control information; and

modulating the directed optical carrier to add a subcarrier containing new control information.

6 – 7. (Canceled)

8. (Currently amended) In an optical communication system, a device for swapping control information comprising:

an optical subcarrier receiver including a fiber adapted to carry a subcarrier multiplexed baseband optical signal, the subcarrier multiplexed baseband optical signal composed of a modulated optical carrier for a payload without control information and a modulated optical subcarrier for control information without payload, the modulated optical subcarrier being at a subcarrier frequency which is separated from the modulation bandwidth of the optical carrier;

an optical circulator having an input port for receiving the subcarrier multiplexed baseband optical signal from the fiber, a bi-directional extraction port and an output port;

an optical filter including a Bragg grating optically coupled to said extraction port of said optical circulator and operative to optically separate the modulated optical subcarrier from the subcarrier multiplexed baseband optical signal and to reflect the modulated optical carrier to the optical circulator;

an optical energy transducer optically coupled to receive from the optical filter the separated modulated optical subcarrier; and

means for modulating the modulated optical carrier received from the output port of the optical circulator to add new information contained in a new modulated optical subcarrier.

9 – 14. (Canceled)

15. (Previously presented) The method according to claim 3, further comprising detecting using an output of said optical energy transducer a low-frequency electrical component of said modulated optical subcarrier.

17. (Previously presented) The method according to claim 7, further comprising a low-frequency detection system including said optical energy transducer detecting a low frequency electrical component of said modulated optical subcarrier.

18. (Previously presented) The method according to claim 8, further comprising a low frequency detection system including said optical energy transducer and detecting a low frequency electrical component of said modulated optical subcarrier.

19 – 20. (Canceled)

21. (Previously presented) The method of claim 3, wherein said optical modulator is controlled by an electrical signal.

22. (Previously presented) The method of claim 5, wherein said modulating step is controlled by an electrical signal.

23. (Previously presented) The device of claim 8, wherein said modulating means is controlled by an electrical signal.

24. (New) In an optical communication system, a method for swapping control information of a baseband optical signal comprising:

receiving a subcarrier multiplexed baseband optical signal containing a modulated optical carrier having a data payload without control information and a modulated optical subcarrier for control information without data payload, the modulated optical subcarrier being at a subcarrier frequency which is separated form the modulation bandwidth of the optical carrier;

inputting the baseband optical signal to a first port of an optical circulator having a Bragg grating connected to a second port of the optical circulator, said Bragg grating being tuned to the subcarrier frequency;

separating through the Bragg grating the modulated optical carrier from the modulated optical subcarrier, wherein the modulated optical carrier is reflected from the Bragg grating back to the second port and the modulated optical subcarrier is transmitted through the Bragg grating;

detecting the control information from the transmitted modulated optical subcarrier;

in response to the detected control information generating new control information in electrical form;

extracting the reflected modulated optical carrier from a third port of the optical circuits; and

applying the extracted and reflected modulated optical carrier it to an optical modulator modulated according to the new control information and receiving the extracted and reflected modulated optical carrier on an optical input port.

25. (New) The method of claim 24, further comprising between the detecting and applying steps extracting and changing the wavelength of the optical carrier in response to the detected control information in a process not including converting the modulated optical carrier to electronic form.

26. (New) The device of claim 8, wherein the modulating means comprises an optical modulator receiving the reflected modulated optical carrier on an optical input port and which is electrically controlled by a signal derived from the optical subcarrier.